

**Index-Guided Red Laser Diode**

**For the availability of this product, please contact the sales office.**

**Description**

The SLD1131VS is an index-guided red laser diode. It features small astigmatism and high-speed pulse response.

**Features**

- Red visible light (670nm typ.)
- Small astigmatism (7 $\mu$ m typ.)
- High-speed pulse response (Rise time = 5ns typ.)
- Low operating current (40mA typ.)
- Small package ( $\phi$ 5.6mm)
- Longitudinal single mode

**Applications**

- Bar code readers
- Measuring instruments

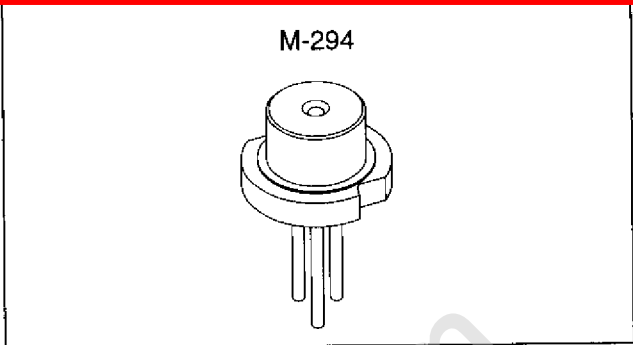
**Structure**

- AlGaInP quantum well-structured laser diode
- PIN photo diode for optical power output monitor

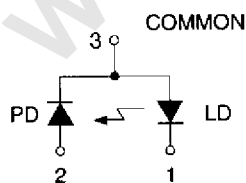
**Recommend Optical Power Output** 4 mW

**Absolute Maximum Ratings (Tc = 25°C)**

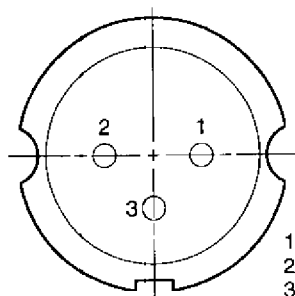
• Optical power output	Pomax	6	mW
• Reverse voltage	V <sub>R</sub> LD	2	V
	PD	15	V
• Operating temperature	T <sub>opr</sub>	-10 to +50	°C
• Storage temperature	T <sub>stg</sub>	-40 to +85	°C



**Connection Diagram**



**Pin Configuration**



- 1. LD cathode
- 2. PD anode
- 3. COMMON

Bottom View

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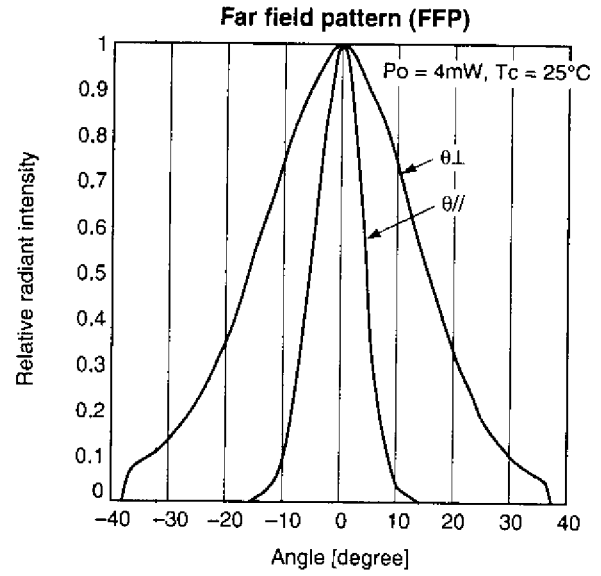
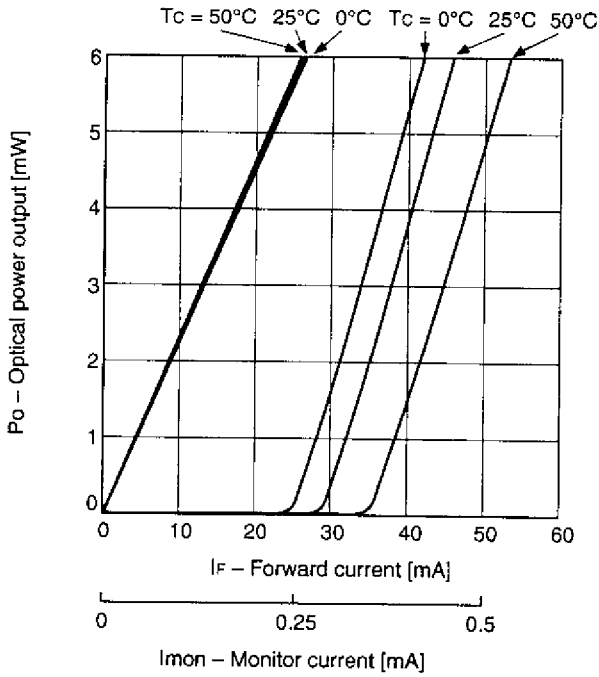
## Optical and Electrical Characteristics (Tc = 25°C)

Tc : Case temperature

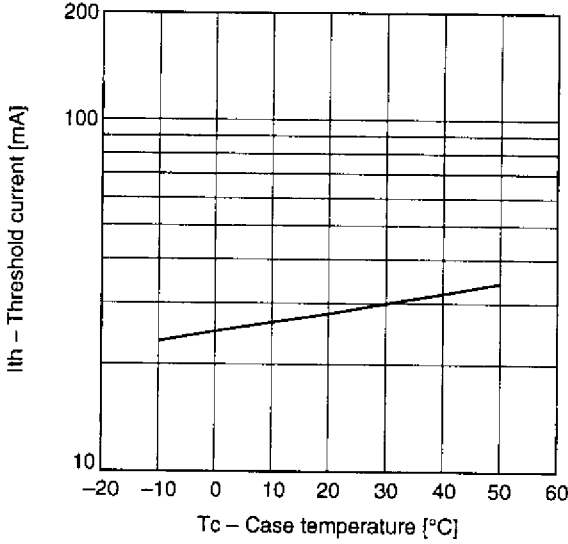
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit	
Threshold current	I <sub>th</sub>			30	50	mA	
Operating current	I <sub>op</sub>	P <sub>o</sub> = 4mW		40	60	mA	
Operating voltage	V <sub>op</sub>	P <sub>o</sub> = 4mW		2.3	2.8	V	
Wavelength	λ	P <sub>o</sub> = 4mW	660	670	680	nm	
Radiation angle	Perpendicular	P <sub>o</sub> = 4mW	θ <sub>⊥</sub>	24	30	35	degree
	Parallel		θ <sub>//</sub>	7	8.5	12	degree
Positional accuracy	Position	P <sub>o</sub> = 4mW	ΔX, ΔY, ΔZ			±80	μm
	Angle		Δφ <sub>//</sub>			±3	degree
			Δφ <sub>⊥</sub>			±3	degree
Differential efficiency	η <sub>D</sub>	P <sub>o</sub> = 4mW	0.15	0.3	0.7	mW/mA	
Astigmatism	A <sub>s</sub>	P <sub>o</sub> = 4mW		7	15	μm	
Monitor current	I <sub>m</sub>	P <sub>o</sub> = 4mW, V <sub>r</sub> = 5V	0.08	0.20	0.60	mA	

Example of Representative Characteristics

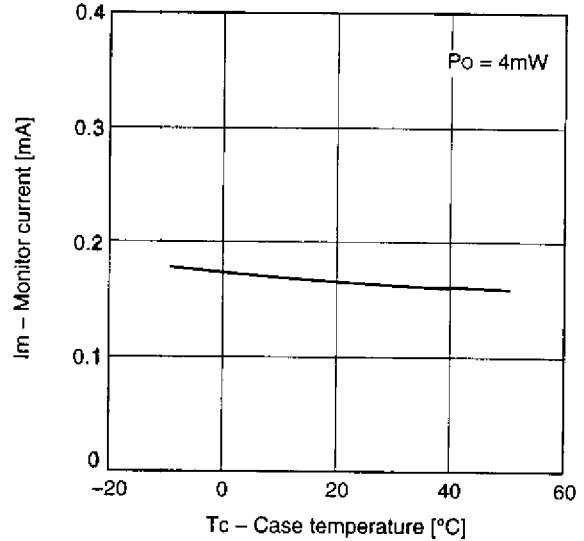
Optical power output vs. Forward current characteristics  
Optical power output vs. Monitor current characteristics



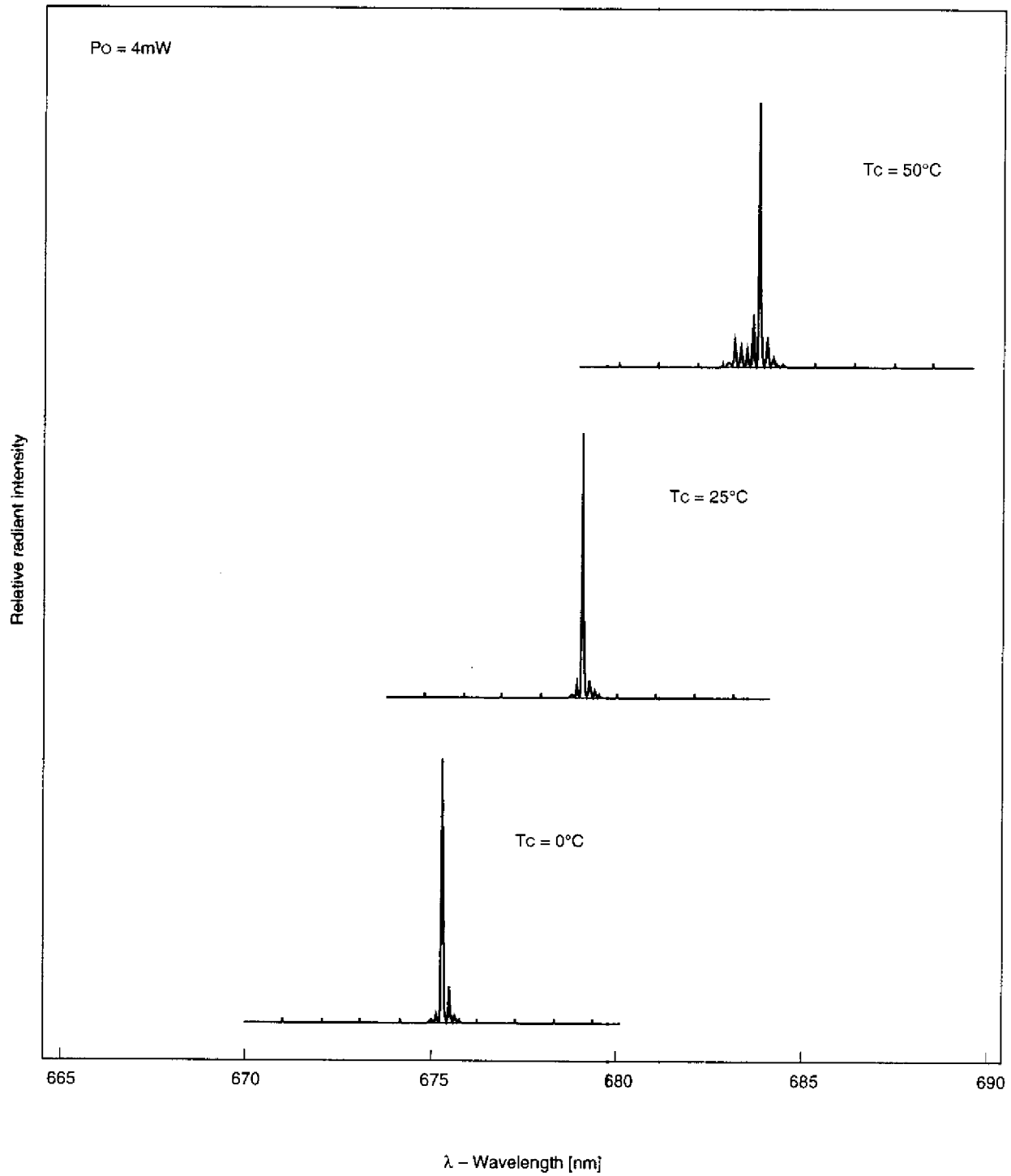
Threshold current vs. Temperature characteristics



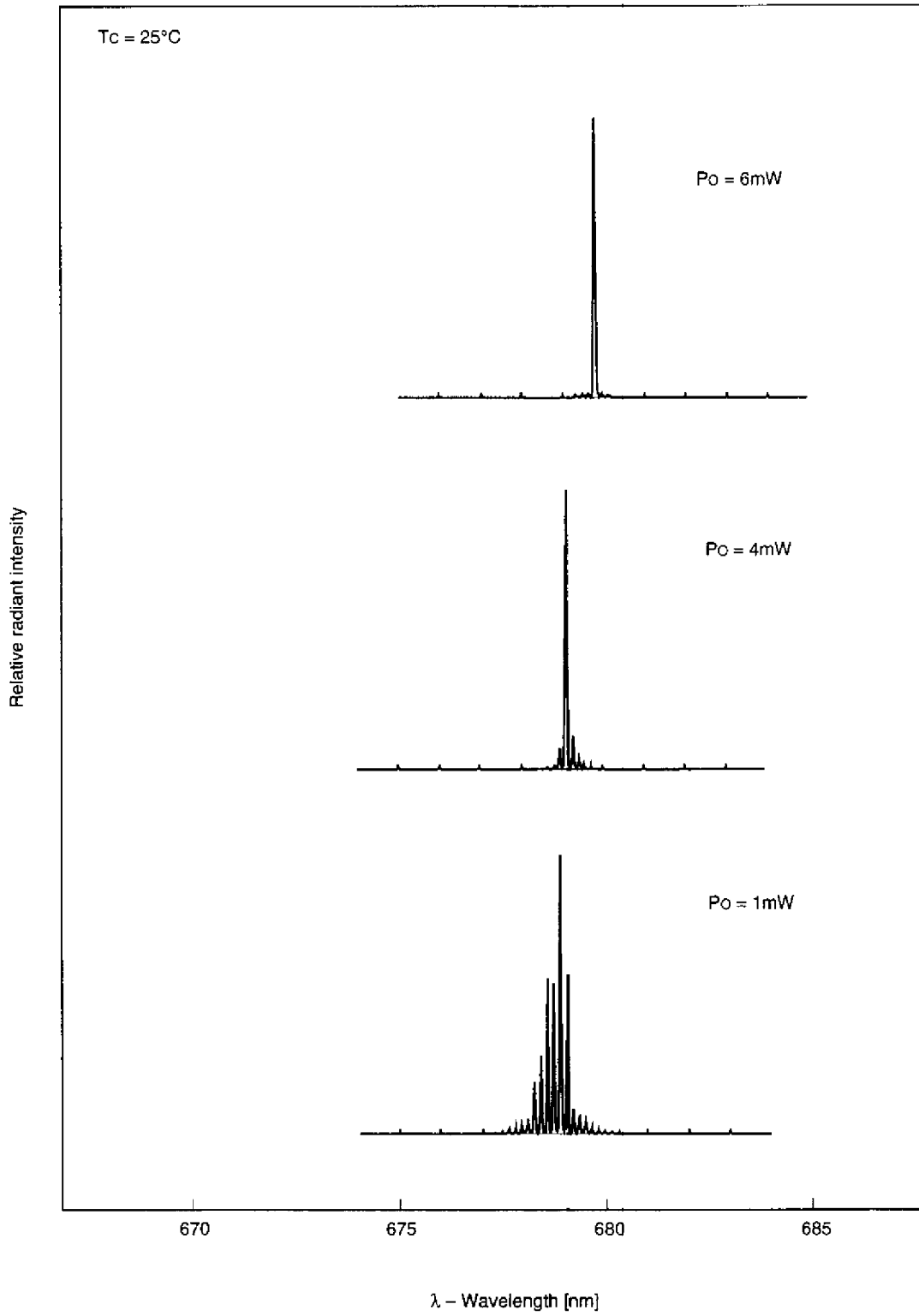
Monitor current vs. Temperature characteristics



Temperature dependence of spectrum



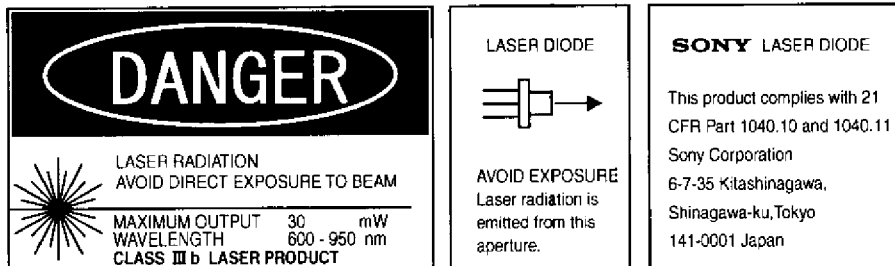
Power output dependence of spectrum



## Notes on Operation

Care should be taken for the following points when using this product.

- (1) This product corresponds to a Class 3B product under IEC60825-1 and JIS standard C6802 "Laser Product Emission Safety Standards".



- (2) Eye protection against laser beams

Take care not to allow laser beams to enter your eyes under any circumstances.

For observing laser beams, ALWAYS use safety goggles that block laser beams. Usage of IR scopes, IR cameras and fluorescent plates is also recommended for monitoring laser beams safely.

- (3) Gallium Arsenide

This product uses gallium arsenide (GaAs). This is not a problem for normal use, but GaAs vapors may be potentially hazardous to the human body. Therefore, never crush, heat to the maximum storage temperature or higher, or place the product in your mouth.

In addition, the following disposal methods are recommended when disposing of this product.

1. Engaging the services of a contractor certified in the collection, transport and intermediate treatment of items containing arsenic.
2. Managing the product through to final disposal as specially managed industrial waste which is handled separately from general industrial waste and household waste.

- (4) Prevention of surge current and electrostatic discharge

Laser diodes are most sensitive to electrostatic discharge among semiconductors. When a large current is passed through the laser diode for even an extremely short time, the strong light emitted from the laser diode promotes deterioration and then destruction of the laser diode. Therefore, note that surge current should not flow to the laser diode driving circuit from switches and others. Also, if the laser diode is handled carelessly, it may be destroyed instantly because electrostatic discharge is easily applied by a human body. Therefore, be extremely careful about overcurrent and electrostatic discharge.

- (5) Use for special applications

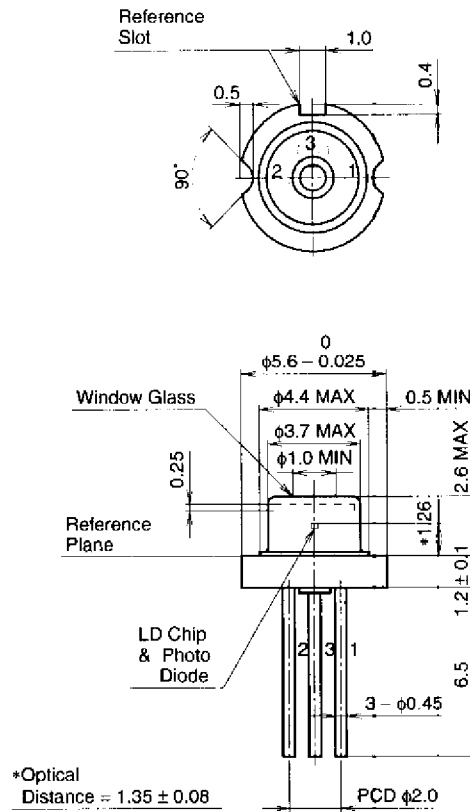
This product is not designed or manufactured for use in equipment used under circumstances where failure may pose a risk to life and limb, or result in significant material damage, etc.

Consult your Sony sales representative when investigating use for medical, vehicle, nuclear power control or other special applications. Also, use the power supply that was designed not to exceed the optical power output specified at the absolute maximum ratings.

Package Outline

Unit: mm

M-294



SONY CODE	M-294
EIAJ CODE	—
JEDEC CODE	—

PACKAGE MASS	0.3g
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